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ABSTRACT

This study describes and assesses the influence of experience and self-confidence on teachers' reactions to problematic situations. Participants in the study were 303 expert and 136 student teachers. Data were obtained by using the questionnaires, "Situations" and "Sense of Efficacy." As expected, student teachers and expert teachers with a high sense of self-efficacy produced more confrontive and fewer permissive reaction-intentions than did student and expert teachers with a low sense of self-efficacy. In contrast to other studies in this area, however, expert and student teachers show no differences in the number of produced reaction-units. Results are discussed in terms of their practical implications for teacher training. (Author/JD)

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Secondary School Teachers' Courses of Action in Relation to Experience and Sense of Self-Efficacy

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Abstract

The frequency of reaction-units and first mentioned categories of reaction-intentions to problematic education situations were investigated among teachers with different levels of sense of self-efficacy and experience. Four hundred and thirty-nine teachers, that is 303 expert and 136 student teachers participated in this research. Data were obtained by using the questionnaires 'Situations' and 'Sense of Efficacy'. As expected, student teachers and expert teachers with a high sense of self-efficacy produced more confrontive and fewer number of permissive reaction-intentions than student and expert teachers with a low sense of self-efficacy. In contrast to other studies in this area, however, expert and student teachers show no differences in the number of produced reaction-units.

Results were discussed in terms of their practical implications for teacher training.

Introduction

Teacher educational leadership, an orderly schoolclimate, well-described objectives, high expectancies of learning outcomes, and the quality of teacher reactions, all contribute to learning outcome (Hopkins, 1987). Wubbels, Créton, and Hooymayers (1985) suggest that a teacher is supposed to have sufficient instructional and social skills to create a climate in which students can spend sufficient time on tasks. Creating such a climate is based on successfully managing problematic education situations, for example students' disruptive behavior during a lesson. Teachers appear to differ in their management qualities. Especially novice teachers with few years of practice find difficulties in interpreting and coping with problematic education situations (Clark & Peterson, 1986; Wubbels, Créton & Holvast, 1988). Effective teachers, however, can establish for example reasonable and workable class-rules. When necessary they insist upon appropriate behavior of students. Their students internalize such rules and procedures easily (Good, 1983).

From a teacher education point of view it is important to describe and assess the influence of experience and effectiveness on teachers' reactions to problematic situations. Studying the above relationship might have implications for the direction and way student teachers' reactions can be affected during their training courses. Changes in teacher training may bring

about that novice teachers start better prepared with respect to managing problematic situations.

Theoretical Perspective

The general purpose of this study is to describe the reactions of teachers to problematic situations. The perspective from which this research is undertaken is the interaction model. Unlike the trait model and the situational model this model interprets human behavior as the interaction between situational and personal characteristics (Endler & Magnusson, 1976; Hettema, 1982). Applied to the educational field this key principle implies that the reactions of teachers are affected by the interaction between features of the educational setting and their own personal characteristics. In this study the educational settings are restricted to problematic situations. Fuller(1969) and Peters (1985) report that many problems are related to instructional difficulties and disruptive behavior of students. Problems are also reported in the domain of school organization and administration. For example, many teachers experience difficulties in coping with their colleagues (Coates & Thoresen, 1976; Peters, 1985).

The reactions of teachers are not conceived of as observable responses elicited by stimuli, but rather as reflections on reactions to problematic situations. Shavelson and Stern (1981) globally state that teaching has to be conceived of as an intentional, conscious, and reflective activity. Sprinthall and Thies-Sprinthall (1983) more specifically suggest that teachers' reflections are antecedents of their reactions. This leads to the notion that changes in reflection may bring about changes in reaction. The above emphasis on reflection is discussed, because many teachers tend to operate in a routinized way (Lowyck, 1984). Weiner (1986) reports, however, that failure or unexpected events elicit peoples' reflections. Problematic situations may be conceived of as unexpected events, because the daily routine of teachers is interrupted by such situations. The above implies that teachers' differences in reactions to problematic situations are understood in terms of differences in their reflections on reactions.

Representatives of the teacher thinking approach argue that reflections on teaching can be described by three processes: teacher planning, teacher interactive thoughts and decisions, teacher theories and beliefs (Clark & Peterson, 1986). In this study the process named teacher interactive decisions is of prime importance. Student-, classroom- or colleague behavior which

cannot be tolerated, will force teachers to reflect on their own reactions. Presumably, they will consider alternative courses of action (see the teacher decision model of Shavelson & Stern, 1981). In this study such considerations are called reaction-intentions. The range of these reaction-intentions is based on studies by Wubbels, Créton, and Holvast (1988) and Folkman and Lazarus (1985). The reaction-intentions refer to the following categories: confrontive reactions; friendly directive reactions; understanding permissive reactions; grumbling permissive reactions; avoiding, distancing reactions; seeking social support, organising reactions; postponed reactions; feelings and undefined responses (Den Hertog, in press). In the first two categories emphasis is laid on the influence of teachers' reactions. Interfering and active reactions are of prime importance. Submission to students' reactions pertains to the category understanding permissive reactions, whereas passivity and avoidance of problem solving form the heart of the categories grumbling permissive reactions and avoiding, distancing reactions.

These reaction-intentions seem to be affected by the way teachers perceive and interpret problematic situations. A person/al/ characteristic as experience appears to be closely related to a teacher's understanding of a problematic situation. Studies on differences between expert and novice teachers show that both groups of teachers may differ in their perceptions of education events (Berliner & Carter, 1987; Calderhead, 1981; 1983; Fogarty, Wang & Creek, 1982; Housner & Griffey, 1983). The view of expert teachers seems to be more concise: they can pick up more relevant information about matters inherent in lessons. Moreover, the reactions of expert teachers are characterized by more complexity. For example, they use more if-then statements. Findings from Berliner (1988) indicate that when expert teachers are faced with students' disruptive behavior, they consider a smaller number of reactions than novice teachers. Leinhardt and Greeno (1986) find that the instructional behavior of expert teachers is more predictable and routinized. By contrast, novice teachers seem to display a constantly changing pattern in their instructional behavior. The unpredictable behavior of novice teachers pertains to uncertainty, rather than to flexibility. Borko and Livingston (1988) report that expert teachers, as compared with novice teachers, seem to adjust their reactions more easily to the demands of an educational setting.

Boei and Kieviet (1989) suggest that in the above studies novice teachers are conceived of as either teachers with few years of practice or student teachers who are attending a University Department of Teacher Education. Expert teachers are defined in terms of experience and/or effectiveness. They

are conceived of as teachers with several years of practice and/or teachers with a certain success in affecting students' learning outcomes. In this study the concepts experience and effectiveness are pertaining to two person/al/ characteristics. Expert teachers are conceived of as teachers who have developed a certain degree of routine, novice teachers are conceived of as student teachers who are attending a University Department of Teacher Eduaction. Effectiveness is described in terms of sense of self-efficacy, referring to the extent to which teachers believe that they have the capacity to affect student performances and the cooperation with colleagues (Den Hertog, in press; Gibson & Dembo, 1984). Den Hertog (in press) theorized that such a believe is closely related to the actual learning outcomes of students and the willingness of colleagues to cooperate. With respect to the first component, findings are consistent with this idea (Ashton & Webb, 1986; Greene, Anderson & Loewen, 1988). Students of teachers with a high sense of self-efficacy appear to score higher on achievement tests than students of teachers with a low sense of self-efficacy. This leads to the notion that findings from Good (1983) on differences between effective and ineffective teachers can be applied to teachers with different levels of sense of self-efficacy. Hence, we assume that teachers with a high sense of self-efficacy activily try to solve problems and change their environments, whereas teachers with a low sense of self-efficacy are passive and avoid problem-solving.

Expectancies

In this study the following questions are studied: (a) Are there differences in categories of reaction-intentions between teachers with different levels of self-efficacy?, (b) Are there differences in number of reaction-intentions between expert and student teachers? Three expectancies based on the above theoretical perspective are formulated. When teachers are confronted with potential problematic situations:

1. teachers with a high sense of self-efficacy will show more confrontive and friendly directive reaction-intentions than teachers with a low sense of self-efficacy;
2. teachers with a low sense of self-efficacy will show more avoidant and permissive reaction-intentions than teachers with a high sense of self-efficacy;
3. student teachers will produce a greater number of reaction-intentions than expert teachers.

Subjects

Subjects were 439 teachers: 303 expert teachers with 8 to 15 years of practice from the South-East of the Netherlands and 136 student teachers from the same region. Table 1 shows in which way expert and student teachers were distributed along gender, age, subjects taught or classes and working-hours or practice in the field.

The teachers were randomly chosen from a list of names provided by schools which agreed to participate.

Table 1

Number of Expert and Student Teachers per Gender, Age, Subjects taught or Classes,
Working Hours or Practice in the Field

			Teachers			
			Expert *(n=303)*		Student *(n=136)*	
			n	%	n	%
Male			206	68.0	69	50.7
Female			79	26.0	66	48.5
Undefined			18	6.0		
Age	< 25		0	0.0	3	2.2
	25 - 39		155	51.1	132	97.1
	40 - 54	years	124	40.9	1	0.7
	> 55		6	2.0		
	undefined		18	6.0		
Subjects/Classes	language		101	33.3	70	51.5
	science		109	36.0	29	21.3
	social science		75	24.7	30	22.1
	undefined		18	6.0	7	5.1
Working Hours	1 - 9		0	0.0		
	10 - 17		35	11.5		
	18 - 25	hours	69	22.8		
	26 - 29		175	57.8		
	> 30		5	1.6		
	undefined		19	6.3		
Practice in the Field	0 - 30				43	31.6
	31 - 60	hours			32	23.5
	61 - 90				5	25.8
	> 90				26	19.1

Materials

The questionnaire 'Situation' (Den Hertog, in press) and 'Sense of Efficacy' (ibid) were used. Teachers' reaction-intentions were assessed by using the questionnaire 'Situation'. This questionnaire consists of three sections. Each section pertains to a description of a problematic situation, which consists of three parts: (a) the context of the event, (b) a sequence of courses of action, (c) an incident, riz. an interaction problem between a teacher and his students or colleagues. The descriptions of situations are related to the following five potentially problematic educational events: (a) a student who talks too much during the lesson; (b) students who have not finished their homework; (c) students who refuse to finish a paper; (d) students who fail to understand the instruction; (e) colleagues who ignore the problems of a teacher (cf Table 2). Three different problematic situations were randomly assigned to each subject. Two problematic situations were referring to interaction problems with students, one to interaction problems with colleagues. Following a description of a problematic situation each subject was prompted to fill out the question 'How would you react?'

Teachers' sense of self-efficacy was assessed by using the questionnaire 'Sense of Efficacy'. This questionnaire consists of 20 Likert type items.Ten items are dealing with the judgement of teachers on their abilities to affect students' behavior and ten are concerned with teachers' perception of their abilities to affect the cooperation with colleagues.

Table 2

Example of a Description of a problematic Situation

One of my students is very talkative. Lately, it seems that she becomes even more fidgety. She is continously talking with her class-mate. Her behavior disturbs my teaching.

Last week I had an appointment with her. I made clear to her that attending my lessons implies no talking. She promised to do her best. During a meeting with my colleagues I discussed with them the behavior of this girl. They did not notice her talkative behavior. Her mentor told us that the girl had problems at home. The staff was working on it.

Today I teach my subject to this class. The girl is talkative again. I pay attention to her, but I fail to draw her into the lesson. Just as I am explaining a difficult task, she is again talking with her class-mate.

I ask her to pay attention to my teaching, but a few moments later she starts talking again.

Recording

Two raters who were naive with respect to the purpose of the study independently divided teachers' reactions in units, based on syntax (cf Table 3). Both raters then assigned each unit in the following exhaustive and exclusive categories: confrontive reactions; friendly directive reactions;

understanding, permissive reactions; grumbling, permissive reactions; avoiding, distancing reactions; seeking social support, organising reactions; postponed reactions; feelings and undefined responses (cf Table 4).

Table 5 shows an example of the way the two raters have unitized and categorized the reaction-intentions.

Table 3

Overview of Decision Rules with respect to Unitizing the Reaction-Intentions of Teachers to problematic Situations

1. The word 'and' implies the start of a new unit. Exceptions: (a) if 'and' implies a goal; (b) if the intent of both units connected by 'and' means the same.
2. Unitizing is independent of categorization.
3. Remarks between brackets are conceived of as examples or as explanations. These remarks will not be unitized.
4. Explanations of reactions will not be unitized.
5. Reactions with alternative courses of action (e.g. I will do either this or that) will be unitized as different reactions.
6. Sometimes interpunction can refer to a goal. Hence, the following will be conceived of as one unit: "I'll ask her to stay after the lesson; remind her of the appointment.

Table 4

Short descriptions of the nine reaction-intentions

Reaction Intentions	Description
Confrontive reactions	Punishing, warning reactions (e.g. a teacher punishes his students by given them more home-work than he had planned).
Friendly directive reactions	Taking clear actions during the lesson, consistent reactions (e.g a teacher emphasizes students' own responsibilities).
Understanding permissive reactions	Cooperative reactions (e.g. a teacher gives students the opportunity to explain their behavior).
Grumbling permissive reactions	Sarcastic, ironic reactions (e.g. a teacher gives a sign that he is irritated but he has no intention to take actions).
Avoiding, distancing reactions	Uncertain, ignoring reactions (e.g. a teacher has no idea what to do, he lets students go their own way).
Seeking social support, organizing reactions	Asking for help, advice (e.g. a teacher talks with the staff about the situation).
Postponed reactions	Reactions directed to students or colleagues after the lessons, or a few days later (e.g. at the end of a lesson a teacher asks a student to stay for a talk).
Feelings	Feelings that are not expressed (e.g.a teacher feels sad).
Undefined responses	Reactions which do not belong to the above categories.

Table 5

An Example of Unitizing and Categorization of a Reaction-Intention

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Situation:
Students who fail to understand the instruction

Reaction-intention:
'I should say that it is alright, walk away from the students and talk with them after the lesson.'

Unitizing:
- (1) I should say that it is alright
- (2) walk away from the students
- (3) talk with them after the lesson

Categorization:
- (1) Understanding permissive reaction
- (2) Undefined response
- (3) Postponed reaction

Reliability and Coderagreement

Reliability scores with respect to sense of self-efficacy were obtained by item analysis of the 'Sense of Efficacy' questionnaire and three months' test-retest reliability. The alpha coefficient of the questionnaire 'Sense of Efficacy' was .81 for expert teachers and .79 for student teachers, the Pearson correlation coefficient for test-retest reliability was .70. With respect to the variables reaction-units and categories of reactions objectivity was obtained by intercoder agreement. Ten percent of the reaction-intentions were randomly selected and were independently coded by two raters. The intercoder agreement for dividing teachers' reaction-intentions in units and categories was .90 and .72, respectively. The intracoder agreement was .80 and .84.

Procedure and Design

During the first two months of 1987 the questionnaires 'Situation' and 'Sense of Efficacy' were sent to expert teachers. Student teachers received the questionnaires during the schoolyear 1987-1988. Both questionnaires were filled out individually, mostly at the subjects' home. Completion of both questionnaires took about 40 minutes. Ninety-three percent of the questionnaires were returned within 50 days.

The dependent variables of this study were the frequency of reaction-units and categories of reaction-intentions mentioned first. Only these categories are used for analysis, because unitizing reaction-intentions implies that teachers have different numbers of reaction-intentions. Teachers' sense of self-efficacy and experience were conceived of as independent variables with two levels.

Teachers' sense of self-efficacy was arbritarily chosen to be high, if teachers had a score of more than one *SD* higher than the mean score on the questionnaire 'Sense of Efficacy' (3.79), and to be low if a score was more than one *SD* below the mean (2.88). The group of teachers with a high sense of self-efficacy consists of 176 subjects, the other group consists of 109 subjects.

Results

Teacher Performances

The first mentioned categories of reaction-intentions produced by teachers with different levels of sense of self-efficacy are shown in Table 6. Their reaction-intentions are generated over the five problematic situations.

Table 6

Categories of First Mentioned Reaction-Intentions produced by Teachers with Different Levels of sense of self-efficacy , generated over the five situations

Teachers (n=285)		Category of Reaction-Intentions								
		CR*	FR	UPR	GR	AR	SR	PR	F	UR
High efficacy *(n = 514)*	*n*	134	186	86	8	12	23	42	20	3
	%	26.1	36.2	16.7	1.6	2.3	4.5	8.2	3.9	0.6
Low efficacy *(n=324)*	*n*	64	126	72	4	18	13	14	6	7
	%	19.8	38.9	21.2	1.2	5.6	4.0	4.3	1.9	2.2

*CR=Confrontive Reactions; FR=Friendly directive Reactions; UPR=Understanding Permissive Reactions; GR=Grumbling permissive Reactions; AR=Avoiding, distancing Reactions; SR=Seeking social support, organizing Reactions; PR=Postponed Reactions; F=Feelings; UR= Undefined Responses

Teachers with a high sense of self-efficacy tend to produce more confrontive, postponed and social organizing reactions than the expected frequencies, whereas teachers with a low sense of self-efficacy tend to produce more friendly directive and understanding permissive reactions, $X^2 = 24.14$, df = 8 and $p < .002$.

The mean number of reaction-units produced by expert and student teachers are shown in Table 7.

Table 7

Mean and Standard Deviation of Number of Reaction-Units produced by Expert and Student Teachers

	Teachers	
Reaction-units	Expert *(n=303)*	Student *(n=80)*
M	6.75	6.89
SD	1.49	1.28

As shown, expert teachers as well as student teachers tend to produce an almost equal mean number of reactions to problematic situations, t = (383) = -.77, p >.204, one tailed.

Discussion

As expected, the results of this study indicate that teachers with a high sense of self-efficacy tend to produce more confrontive reaction-intentions than teachers with a low sense of self-efficacy. The latter group of teachers seems to produce more permissive reaction-intentions. In contrast to previously found differences between teachers with either different years of experience or levels of self-efficacy (Berliner, 1988; Calderhead, 1981, 1983; Good, 1983) teachers with a high as well as with a low sense of self-efficacy appear to produce only a limited number of avoidant reaction-intentions. Besides, teachers with a low sense of self-efficacy tend to produce more friendly directive reaction-intentions than teachers with a high sense of self-efficacy. Finally, expert and student teachers produce the same number of reaction-intentions to several problematic situations.

Possible explanations for our results are the following. Differences in orientation between teachers with different levels of self-efficacy may be underlying differences in reaction-intentions. Strahan (1989) suggests that teachers with a high sense of expertise have a student-centered orientation. Their orientation is directed at support and nurture of students. The orientation of novice teachers, however, is teacher-centered, that is directed at making good impressions on students. Applied to teachers with different levels of self-efficacy , this leads to the notion that teachers with a low sense of self-efficacy may consider that students appraise confrontive reactions as unkind actions and permissive and friendly directive reactions as positive.

Student as well as expert teachers seem to produce the same number of reaction-intentions to several problematic situations. Two different processes may be involved. As expected, the number of student teachers' reaction-intentions may be affected by their lack of routine (Leinhardt & Greeno, 1986). Compared with expert teachers their view is less concise. Hence, they appear to produce several reaction-intentions in each problematic situation. The number of expert teachers' reaction-intentions may be affected by another factor that is the time taken for solving a problem. Berliner (1986) suggests that expert teachers contrasted with novice teachers, take longer to examine a problem, to build a problem representation and to reflect on their first strategies. This may cause expert teachers reading the problematic situations of the questionnaire 'Situation' to discover more cues hidden in the situations than student teachers. Hence, by using several cues even expert teachers produce a variable number of reaction-intentions in each problematic situation.

There are, however, some limitations with respect to the presented findings. A potential threat to the external validity of the conclusions seems to be the way teachers' reaction-intentions are recorded. In this study teachers' reaction-intentions are divided in units, based on syntax. This may bring about that more complex reaction-intentions, for example several if-then statements, are conceived of as alternative units. Because findings from Berliner and Carter (1987) indicate that expert teachers show more complex reactions than novice teachers, this may result in the more than expected number of reaction-intentions by expert teachers. A further potential threat is the way teachers' reaction-intentions are assessed. The descriptions of problematic siutations, which form the heart of the questionnaire 'Situation', may be responsible for the fact that teachers produce a limited number of avoidant reaction-intentions. Teachers conceive of these descriptions as not highly problematic. They define them in terms of incidents (Bergen & Van Opdorp, 1989). In other words teachers have no reason to avoid the problematic situations. Another possible explanation is that the question 'How would you react' may cause the above result. Such a question may elicit social desirable reaction-intentions. Teachers like to give the impression that they can handle problematic situations and answer in a controllable way (Weiner, 1986). A last potential threat to the external validity is the resarch method in general. In this study the concepts reaction-intentions and sense of self-efficacy were assessed by questionnaires. According to the interaction model, however, a natural, everyday setting, for example classroom

observations, would have been more appropriate. The latter research method has one important disadvantage: because of its laborious features it only allows for predictions and statements based upon small samples of teachers (Boei & Kieviet, 1989). Besides, in the study presented here the influence of the 'verhaltensferne' aspect (Wahl, 1981) typical for a questionnaire-method, has been reduced successfully. The questionnaire 'Situation' consists of situations that teachers conceive of as representative of their teaching practice (Bergen & Van Opdorp, 1989). Moreover, to approximate a real life setting we are presently involved in assessing differences between expert and novice teachers faced with video taped problematic situations (Korevaar, 1989).

With respect to teacher training, micro teaching may be a good opportunity for student teachers with a low sense of self-efficacy to practise confrontive reactions to problematic situations. Moreover, before and after their practice in the field they may be stimulated to take time for solving problematic situations. They have to learn to pick up all relevant cues hidden in a situation, reflect on several strategies and finally decide how to react. A better awareness of relevant situational cues may result in a better preparation for their job of a teacher.

The study presented here is best seen as an initial effort to assess teachers' reaction-intentions to problematic situations. Although limitations are impored on the conclusions this study shows that compared to teachers with a high sense of self-efficacy, teachers with a low sense of self-efficacy intend to react in a permissive, friendly directive way.

References

Ashton, P.T. & Webb, R.B. (1986). *Making a difference. Teachers' sense of efficacy and student achievement.* New York & London: Longman.

Berliner, D. C. (1986). In pursuit of the expert pedagogue. *Educational Researcher, 15, 7,* 5-13.

Berliner, D.C. & Carter K.J. (1987). *Differences in processing Classroom Information by expert and novice teachers.* Paper presented at the Meeting of the International Study Association on Teacher Thinking, Leuven.

Berliner, D.C. (1988). *Memory for Teaching Events as a Function of Expertise.* Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans.

Bergen, Th.C.M. & Van Opdorp, C.A.W. (1989). Probleemsituaties in het onderwijs Een beoordeling door docenten [Problematic situations in education: a judgment by teachers']. *Pedagogische Studiën, 66*, 327-340.

Boei, F. & Kieviet, F. (1989). Beginners en experts in het onderwijs: onderzoeksresultaten en hun bruikbaarheid voor de opleiding van onderwijsgevenden [Novices and Experts in education: results of research and implications for teacher education]. *Pedagogische Studieën, 66*, 327-340.

Borko, H. & Livingston C. (1988). *Expert and novice teachers' mathematics instruction: planning, teaching and post-lesson reflection.* Paper presented at the Annual Meeting of the American Educational Research Association. New Orleans.

Calderhead, J. (1981). A psychological approach to research on teachers' classroom decision making. *British Educational Research Journal, 7*, 51-57.

Calderhead, J. (1983). *Research into teachers' and student teachers' cognitions: Exploring the nature of classroom practice.* Paper presented at the Annual Meeting of the American Educational Research Association, Montreal.

Clark, C.M. & Peterson P.L. (1986). Teachers' thought processes. In: M.C. Wittrock (Ed.), *Handbook of research on teaching (3rd ed.)*. New York: Macmillan.

Coates, Th. & Thoresen E. (1976). Teacher anxiety: A review with recommendations. *Review of Educational Research, 46*, 159-184.

Den Hertog, P. (in press). *Persoonlijkheidskenmerken van leerkrachten* [Personal characteristics of teachers]. Doctoral dissertation, University of Nijmegen.

Endler, N.S. & Magnusson, D. (1976). Toward an interactional psychology of personality. *Psychological Bulletin*, 83, 965-974.

Fogarty, J.L., Wang, M.C. & Creek, R. (1982). *A descriptive study of experienced and novice teachers' interactional instructional decision processes*. Paper presented at the Annual Meeting of the American Educational Research Association, New York.

Folkman, S. & Lazarus, R.S. (1985). If it changes it must be a process. Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology, 76* (4), 569-582.

Fuller, F.F. (1969). Concerns of teachers: A developmental conceptualization. *American Educational Research Journal, 6,* 207-226.

Gibson, S. & Dembo, M. (1984). Teacher efficacy: A construct validation. *Journal of Eduaction Psychology, 76 (4),* 569-582

Good, T.L. (1983). Recent Classroom Research: Implications for Teacher Education. In: D.C. Smith (ed.), *Essential Knowledge for Beginning Educators* (pp. 55-64). Washington: Eric Clearinghouse.

Greene, M.L. Anderson, R.N. & Loewen, P.S. (1988). Relationship among Teachers' and Students' Thinking Skills, Sense of Efficacy, and Student Achievement. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans.

Hettema, P. J. (1982). Situatiespecifieke persoonlijkheidsdiagnostiek. In: K.A. Soudijn (red.), *Psychologisch onderzoek in perspectief.* Tilburg: Katholieke Hogeschool.

Hopkins, D. (1987) . *Improving the quality of schooling.* Lessons from the OECD International School Improvement Project. London/New York: The Palmer Press.

Housner, L.D., & Griffey, D.C. (1983). *Teacher cognition: Differences in planning and interactive decision making between experienced and inexperienced teachers.* Paper presented at the Annual Meeting of the American Educational Research Association, Montreal.

Korevaar, A. G. (1989). *Differences in reaction-intentions by expert and novice teachers.* A research design. Internal publication. Nijmegen.

Leinhardt, G. & Greeno, G. (1986). The cognitive skill of teaching. *Journal of Educational Psychology, 78,* 75-95.

Lowyck, J.(1984). Teacher thinking and teacher routines: A bifurcation? In R. Halkes & J.K. Olson (Eds.), *Teacher thinking: a new perspective on persisting problems in education* (pp. 7-18). Lisse: Swets & Zeitlinger.

Peters, V.A.M. (1985). *Docenten en hun probleemsituaties* [Teachers and problematic situations]. Doctoral dissertation, University of Nijmegen.

Shavelson, R.J. & Stern, P. (1981). Research on teachers' pedagogical thoughts, judgements, decisions and behavior. *Review of Educational Research, 51,* 455-498.

Shroyer, J.C. (1981). *Critical moments in the teaching of mathematics: What makes teaching difficult?* Unpublished doctoral dissertation, Michigan State University. East Lansing.

Sprinthall, N.A. & Thies-Sprinthall L. (1983). The teacher as an adult learner: a cognitive developmental view. In: G.A. Griffin (Ed.), *Staff*

development. Eighthy second Yearbook of the National Society for the study of Education. Chicago: University of Chiacgo Press.

Strahan, D.B. (1989). How experienced and novice teachers frame their views of instruction: an analysis of semantic ordered trees. *Teaching and Teacher Education, 5*, 1, 53-67.

Wahl, D. (1981). Methoden zur Erfassung handlungssteurender Kognitionen. In: M. Hofer (Hrsg.): *Informationsverarbeitung und Entscheidungsverhalten von Lehrern*. München: Urban & Schwarzenberg.

Weiner, B. (1986). *An attributional theory of motivation and emotion*. New York: Springer Verlag.

Wubbels, Th., Créton, H.A., & Holvast, A.J.C.D. (1988). Undesirable classroom situations: a systems communication perspective. *Interchange, 19*, 25-40.

Wubbels, Th., Créton & H.A., Hooymayers, H.P. (1985). *Discipline problems of beginning teachers*. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago.

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